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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,219	02/19/2002	Robert Hughes Jones	8036-1004	6866

7590 10/21/2002

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[REDACTED] EXAMINER

LOBO, IAN J

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

3662

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/079,219	JONES, ROBERT HUGHES
	<b>Examiner</b>	<b>Art Unit</b>
	Ian J. Lobo	3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
  - 2a) This action is **FINAL**.      2b) This action is non-final.
  - 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.
- Disposition of Claims**
- 4) Claim(s) 1-6 is/are pending in the application.
    - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
  - 5) Claim(s) \_\_\_\_\_ is/are allowed.
  - 6) Claim(s) 1-6 is/are rejected.
  - 7) Claim(s) \_\_\_\_\_ is/are objected to.
  - 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                    | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                           | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4.5</u> . | 6) <input type="checkbox"/> Other: _____                                    |

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 112***

2. Claims 3, 4 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 3 and 6, it is vague and indefinite what the claimed "least square basis" entails.

In claims 4 and 6, it is vague and indefinite what entails the output from the sensors being "coherent".

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gragnolati et al ('872) or the UK patent application to Halladay et al ('337) when taken in view of Bednar ('362) or Jones, Jr. ('375).

The patent to Gragnolati et al discloses a method of using a seismic detector including four seismic sensors (col. 4, lines 23-27 and Fig. 4) to detect and measure seismic activity. Similarly, the UK patent application to Halladay et al discloses a method of using a seismic detector including four seismic sensors (see Fig. 1) to detect and measure seismic activity. It is noted that use of the Halladay et al and Gragnolati et al systems provides for three dimensional indications of motion.

The difference between claim 1 and the Gragnolati et al patent or Halladay et al patent application is the claim specifies the step of combining the outputs of the sensors to check that their polarities are correct.

The patent to Bednar teaches that checking for proper polarities of a geophone or sensor is important especially when the sensors or geophones are connected in an array. Further, the patent to Jones, Jr. teaches (col. 1, lines 52-62) that testing and maintaining the polarity of sensors in a seismic data acquisition system is extremely important.

Thus, in view of Bednar or Jones, Jr., it would have been obvious to one of ordinary skill in the art to modify the methods of Halladay et al or Gragnolati et al by including the step of checking the polarities of the sensor outputs. Claim 1 is so rejected.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gragnolati et al ('872) or the UK patent application to Halladay et al ('337) when taken in view of Fredriksson et al ('175) or Hall, Jr. ('216).

The patent to Gragnolati et al discloses a method of using a seismic detector including four seismic sensors (col. 4, lines 23-27 and Fig. 4) to detect and measure seismic activity. Similarly, the UK patent application to Halladay et al discloses a method of using a seismic detector including four seismic sensors (see Fig. 1) to detect and measure seismic activity. It is noted that use of the Halladay et al and Gragnolati et al systems provides for three dimensional indications of motion.

The difference between claim 5 and the Gragnolati et al patent or Halladay et al patent application is the claim specifies the step of checking the gains or sensitivities of the four channels. Claim 4 specifies checking if the outputs are "coherent".

The patents to Hall, Jr. and Fredriksson et al each teaches that checking for sensitivities of a geophone or sensor is extremely important especially when the sensors or geophones are connected in an array.

Thus, in view of Fredriksson et al or Hall, Jr., it would have been obvious to one of ordinary skill in the art to modify the methods of Halladay et al or Gragnolati et al by including the step of checking the sensitivities of the sensor outputs. Claim 5 is so rejected.

With respect to claim 4, it is argued that checking of the sensitivities of each sensor reads upon checking of the coherent outputs of each sensor.

6. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gragnolati et al ('872) or the UK patent application to Halladay et al ('337) when taken in view of McCormick ('018).

The patent to Gragnolati et al discloses a method of using a seismic detector including four seismic sensors (col. 4, lines 23-27 and Fig. 4) to detect and measure seismic activity. Similarly, the UK patent application to Halladay et al discloses a method of using a seismic detector including four seismic sensors (see Fig. 1) to detect and measure seismic activity. It is noted that use of the Halladay et al and Gragnolati et al systems provides for three dimensional indications of motion.

The difference between claim 2 and the Gragnolati et al patent or Halladay et al patent application is the claims specify the step of testing to ascertain if one of the sensors is not working or if all the sensors are working. Claim 4 requires testing the outputs for coherence.

McCormick teaches that in multi-sensor seismic systems it is common to test for the worthiness of each of the sensors in the multi-sensor system and a specific test may be the relative sensitivities of the sensors. Thus, in view of McCormick, it would have been obvious to one of ordinary skill in the art to modify either Gragnolati et al or Halladay et al to include testing the worthiness of each sensor and/or testing the relative sensitivities of each sensor. It is an inherency that the skilled artisan would only use the working or "worthy" sensors in the three dimensional analysis.

### ***Specification***

7. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a).  
"Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian J. Lobo whose telephone number is (703) 306-4161. The examiner can normally be reached on Mon - Fri, 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (703) 306-4171. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9326 for regular communications and (703) 872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.



Ian J. Lobo  
Primary Examiner  
Art Unit 3662

ijl  
October 16, 2002